50167, Honolulu, Hawaii 96850 (808/541–2749).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order, under the family Asteraceae to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
. .	.	.	.	.	.	.
Asteraceae—Aster family:						
Argyroxiphium kauense	Ka'u Silversword	U.S.A. (HI)	E	497	NA	NA
. .	.	.	.	.	.	.

Dated: March 24, 1993.

Richard N. Smith,

Acting Director, Fish and Wildlife Service.

[FR Doc. 93–8075 Filed 4–6–93; 8:45 am]

BILLING CODE 4310–55–M

50 CFR Part 17

RIN 1018–AB75

Endangered and Threatened Wildlife and Plants; Amaranthus pumilus (Seabeach Amaranth) Determined To Be Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines *Amaranthus pumilus* (seabeach amaranth) to be a threatened species under the authority of the Endangered Species Act of 1973, as amended (Act). This annual herb is limited to populations in New York, North Carolina, and South Carolina. *Amaranthus pumilus* is threatened throughout its range by beach stabilization structures, beach erosion and tidal inundation, beach grooming, herbivory by insects and feral animals, and, in certain limited circumstances, by off-road-vehicles (ORVs). This action extends Federal protection under the Act to seabeach amaranth.

EFFECTIVE DATE: May 7, 1993.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the Asheville Field Office, U.S. Fish and Wildlife Service, 330 Ridgefield Court, Asheville, North Carolina 28806.

FOR FURTHER INFORMATION CONTACT: Ms. Nora Murdock at the above address (704/665–1195).

SUPPLEMENTARY INFORMATION:

Background

Amaranthus pumilus, described by C. S. Rafinesque (1808) from material collected in New Jersey, is an annual plant in the Amaranth family. Germination takes place over a relatively long period of time, generally from April to July. Upon germinating, this plant initially forms a small unbranched sprig, but soon begins to branch profusely into a clump, often reaching a foot in diameter and consisting of 5 to 20 branches. Occasionally a clump may get as large as a yard or more across, with a hundred or more branches. The stems are fleshy and pink-red or reddish, with small rounded leaves that are 1.3 to 2.5 cm in diameter. The leaves are clustered toward the tip of the stem, are normally a spinach-green color, and have a small notch at the rounded tip. Flowers and fruits are relatively inconspicuous, borne in clusters along the stems. Flowering begins as soon as plants have reached sufficient size, sometimes as early as June, but more typically commencing in July and continuing until the death of the plant in late fall. Seed production begins in July or August and reaches a peak in most years in September but continues until the death of the plant.

Weather events, including rainfall, hurricanes, and temperature extremes, and predation by webworms have strong effects on the length of seabeach amaranth's reproductive season. As a result of one or more of these influences, the flowering and fruiting period can be terminated as early as June or July. Under favorable circumstances, however, the reproductive season may extend until January, or sometimes later (Bucher and Weakley 1990, Weakley and Bucher 1991, Radford et al. 1968).

Amaranthus pumilus is endemic to Atlantic coastal plain beaches, where it is currently known from 13 populations in New York, 34 populations in North Carolina, and 8 populations in South Carolina. The species occurs on barrier island beaches, where its primary habitat consists of overwash flats at accreting ends of islands and lower foredunes and upper strands of noneroding beaches. It occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, and sand and shell material placed as beach replenishment or dredge spoil. Seabeach amaranth appears to be intolerant of competition and does not occur on well-vegetated sites. The plant acts as a sand binder, with a single large plant being capable of creating a dune up to 6 decimeters high, containing 2 to 3 cubic meters of sand, although most are smaller (Weakley and Bucher 1991). As stated by Weakley and Bucher (1991):

> Seabeach amaranth appears to need extensive areas of barrier island beaches and inlets, functioning in a relatively natural and dynamic manner. This allows it to move around in the landscape, as a fugitive species, to occupy suitable habitat as it becomes available.

Historically, seabeach amaranth occurred in 31 counties in 9 States from Massachusetts to South Carolina. Seabeach amaranth has now been

eliminated from six of the States in its historic range. Of the 55 remaining populations in New York, North Carolina, and South Carolina, 9 are located on lands administered by the National Park Service, 1 is on land administered by the Department of Defense, 1 is on New York City park land, 9 are on State parks and reserves, 3 are on county parks, 2 and part of another are on municipal land, 1 is on land administered by the U.S. Fish and Wildlife Service, and the remaining 28 and part of another population are on private lands. The 41 populations known to have been extirpated are believed to have succumbed as a result of "hard" beach stabilization structures (seawalls, riprap, etc.), storm-related erosion, heavy recreational beach use by ORVs, and possibly as a result of herbivory by webworms. The continued existence of *Amaranthus pumilus* is threatened by these activities, as well as by beach grooming and some forms of "soft" beach stabilization, such as sand fencing and planting of beach-grasses.

The Service recognized *Amaranthus pumilus* as a category 2 candidate for listing in the Supplement to Review of Plant Taxa for Listing as Endangered or Threatened Species published in the **Federal Register** on November 28, 1983 (48 FR 53640). Category 2 comprises those taxa for which listing is possibly appropriate but for which existing information is insufficient to support a proposed rule. Subsequent revisions of the 1983 notice have maintained *Amaranthus pumilus* in category 2. Recent surveys conducted by Service, State, and Nature Conservancy personnel presented sufficient information for the Service to propose to list *Amaranthus pumilus* as threatened on May 26, 1992 (57 FR 21921).

Summary of Comments and Recommendations

In the May 26, 1992, proposed rule; the October 20, 1992, notice of public hearing and extension of the comment period (57 FR 47833), the November 5, 1992, public hearing; and notifications associated with these activities, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting public comment were published in the following newspapers: Star News, Wilmington, North Carolina; Post and Courier, Charleston, South Carolina; Newsday, New York, New York; and Coastland Times, Manteo, North Carolina. In response to a formal request, a public hearing on the proposal to list *Amaranthus pumilus* as a threatened species was held on November 5, 1992, at Cape Hatteras School, Buxton, North Carolina. A notice of the hearing and reopening of the comment period to November 16, 1992, was published in the **Federal Register** on October 20, 1992. The public hearing notice announced the purpose, time, and location of the hearing and extended the formal comment period on the proposal in order to ensure that all interested parties had ample time to provide information on the proposed rule.

All written comments and oral statements presented at the public hearing and those received during comment periods are covered in the following discussion. Comments of similar content are grouped together; these and the Service response to each are discussed below.

Seven written responses to the proposed rule were received during the initial comment period. Five of these comments were from State agencies, and two were from private conservation organizations.

The North Carolina Department of Agriculture, the North Carolina Natural Heritage Program, the New York State Department of Environmental Conservation, the North Carolina Division of Parks and Recreation, and the New York Natural Heritage Program all strongly supported the addition of seabeach amaranth to the Federal list of threatened species; they provided updated information on the status of the species in North Carolina and New York. The Service has incorporated the additional information on the status and conservation of the species, as appropriate, into this document.

The Center for Plant Conservation and the Long Island Chapter of The Nature Conservancy also strongly supported the addition of this species to the Federal list of threatened species.

The Dare County, North Carolina, Board of Commissioners requested a public hearing on the Service's proposal and requested additional information on the plant and maps of population locations. In addition, they requested a presentation to the Board of Commissioners by the Service. This additional information was provided, and a presentation was given to the Board on August 17, 1992.

The public hearing on the proposed rule to list seabeach amaranth as a threatened species was held on November 5, 1992, in the auditorium of the Cape Hatteras School, Buxton, North Carolina. Fifteen verbal statements were made at the public hearing, and eight written statements were provided, one of which was a copy of a verbal statement given. Nine written comments were received during the comment period extension.

Statements at the Public Hearing

The Dare County Board of Commissioners expressed opposition to the proposed addition of seabeach amaranth to the Federal list. The commissioners' representative stated that 80 percent of the land in Dare County is in Federal ownership, and the commissioners felt that the county had already "absorbed enough of the regulatory bureaucracy." They also expressed their fear that the beaches of the county would no longer be available for public recreation if this plant were added to the threatened species list. The Service does not believe there is a need to completely exclude public recreation from the beaches in order to conserve seabeach amaranth in Dare County, nor does the Service have the authority to do so. This plant occupies much of the same habitat already used for nesting by the piping plover, which has been listed as threatened since 1985, and the loggerhead sea turtle, which has been listed as threatened since 1978. The Service has worked with the Federal agencies involved in managing these species' habitats, without excluding public recreation from large areas of the beach. Areas of nesting habitat for the two animal species have been roped off to allow these species to complete their reproductive cycle without eggs and young being crushed by ORVs. The Service believes that seabeach amaranth can be conserved by means of the same management. In fact, many of the areas that represent the best habitat for seabeach amaranth are those that are already roped off for nesting shorebirds and loggerhead sea turtles. The Service does not believe there is a need to close off significant additional areas.

Several respondents suggested that local planting projects be attempted in lieu of listing the species. The Service responded that, although the offers of volunteer help were much appreciated and can be incorporated into recovery efforts for the species, much of the habitat within the species' historic range has been rendered permanently unsuitable for it by the construction of seawalls and the placement of riprap on beaches. In addition, simply cultivating the plants or planting seeds, even on apparently suitable habitat, will not alleviate all the threats of seabeach amaranth. In many areas, heavy infestations by caterpillars have caused

massive defoliations and reproductive failure in this species, even in large populations. The species is also eaten by feral livestock in certain areas. A species which has already been eliminated from two-thirds of its historic range, by definition, is in danger. Under the Endangered Species Act of 1973, as amended, Congress required that the Fish and Wildlife Service list such species as endangered or threatened.

One respondent presented a proposal to recover the species by planting it on off-shore spoil islands that are not generally accessible to people and using it to stabilize areas of beach adjacent to N.C. Highway 12 where erosion threatens the main highway on the Outer Banks. One of the Act's primary purposes, as stated in section 2(b), is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." Cultivation of endangered and threatened species can be a positive conservation tool, and it is often identified as a task necessary for the ultimate recovery of species. The cultivation of threatened species and their reintroduction into areas where they have been extirpated, but where suitable habitat still remains, is a key part of the Service's recovery program for listed species. However, attempting to plant seabeach amaranth in areas that do not represent suitable habitat, such as eroding and otherwise unstable parts of islands, would, in all likelihood, not be successful. These annual plants must be able to survive over an entire season in order to set seed for the following year. The Service believes that cultivation of seabeach amaranth without protecting the natural ecosystems upon which it depends would not meet the requirement of the Act. The range of environmental requirements for successful reestablishment of this species in the wild is not fully understood and will require additional research before anyone can reintroduce the species with confidence that the reintroduction will be successful. Nevertheless, the Service intends to seek out protected areas of suitable habitat where the species has been extirpated and reintroduce it to those areas in hopes of eventual recovery.

One respondent expressed concern that Federal excise tax revenues legislated under the Pittman-Robertson and Dingell-Johnson Acts were not being made available for endangered species conservation. These funds, being a tax on hunters and sport fishermen, are used by the Service and the States for the conservation of wildlife species.

Many of the comments at the public hearing regarded the potential economic impact that the listing of the species would have on local businesses. These concerns were directly related to the fear that this listing would result in the exclusion of vehicles and people from the beaches, thereby curtailing surf fishing and tourism in general. The Act requires the Service to base its listing decisions upon the best biological data available, not economic considerations. However, the Service believes that the conservation of seabeach amaranth in Dare County can be achieved without any noticeable effects on the local economy. There are only two extant populations of the plant in the county, and the area occupied by the plants is only a small percentage of the total beach available to the public for recreation. There are over 80 miles of beach in Dare County; much of this is publicly owned beach that is part of Cape Hatteras National Seashore and Pea Island National Wildlife Refuge. Seabeach amaranth occupies approximately 2.5 percent of this beach area in two discrete locations. Cape Hatteras Point, an extremely popular area used by surf fishermen and other recreational users, has consistently supported one of the largest populations of seabeach amaranth remaining within the range of the species. The Service considers this ample evidence of the compatibility of this species with these types of human use. The drivers of ORVs, which could be a threat to the species at this location, have demonstrated respect for designated vehicle corridors and areas that are roped off for the protection of nesting shorebirds and sea turtles.

One respondent asked if germ plasm from seabeach amaranth had been collected for long-term preservation. The Service responded that some efforts in this regard have been made; however, material has not been collected from all remaining populations. This would be a part of the Service's recovery program for the species.

One respondent stated that, because critical habitat areas were not identified and specific management proposals were not part of the proposed rule, it was unclear what the public was being asked to respond to. The Service did not propose specific management programs for the species in the proposed rule, since this will be a part of the recovery program following the addition of the species to the Federal list of endangered and threatened species. Much remains unknown about the life history requirements and population biology of this species. Further research must be undertaken before sound management proposals can be developed. The Service has determined that designation of critical habitat for this species is not prudent at this time due to its vulnerability to taking and vandalism. In Dare County, the two extant populations are located on Park Service lands. This agency is well aware of their presence and is taking steps to protect them. (See further discussion in the "Critical Habitat" section of this rule.)

One respondent expressed concern about the impact of the listing of seabeach amaranth on the Oregon Inlet jetty project. The Service responded that this species has never been found at Oregon Inlet. The closest known population to that area is approximately 40 miles to the south. Nevertheless, if the plant were to be found at Oregon Inlet at some point in the future, before the jetties were built and after the species was listed, the Service and the U.S. Army Corps of Engineers would go through the section 7 consultation process and attempt to eliminate or minimize impacts to the plant while allowing the project to proceed to the maximum extent possible. The loggerhead sea turtle, a species already on the Federal threatened species list, nests at Oregon Inlet and was the subject of a formal consultation there. At the conclusion of the consultation, it was decided that the project could proceed with certain modifications without jeopardizing the continued existence of this species.

One of the respondents wanted to discuss piping plovers and the draft proposal to designate critical habitat for this species. Since this was not the subject of the hearing, plover issues were not addressed.

One respondent stated that he did not believe that the Service's data had spanned a long enough period of time to support the listing of the species as threatened. The Service responds that observations of this plant have been made since the early 1800s. It is now completely extirpated from six of the nine States within its historic range; many of the remaining populations are currently subject to threats, and South Carolina's populations have been reduced by 90 percent in the last 4 years. From 1988 to 1989, a rangewide reduction in population numbers of 76 percent was noted. Although this plant naturally fluctuates to some extent from one year to the next, such large rangewide reductions in populations are alarming. Over one-fifth of the historic populations in South Carolina have been extirpated. Half of the populations remaining in that State have fewer than

25 plants each, and the total State census in 1990 was only 188 plants. New York has a total State census of only 357 plants and only one population containing over 100 plants. North Carolina, the remaining stronghold for the species, has 18 populations with over 100 plants each. Thirty percent of North Carolina's remaining populations have fewer than 25 plants each. The very small remaining populations are extremely vulnerable to extirpation.

One private landowner from Dare County supported the listing of the species. Another took no position on the listing but recommended that study areas be chosen with care so as not to unduly impact the economy of the area.

Written Statements Received After the Public Hearing

Nine written comments were received during the comment extension period—one from a State agency, one from a Federal agency, and seven from private individuals.

The North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, supported the protection of seabeach amaranth under the Act, stating that:

> The proposed rule is well written and very accurately and thoroughly describes the status of and threats to seabeach amaranth. The reduction of a vascular plant species to a third of its former range is highly unusual. Plant species are frequently reduced to small populations distributed in a scattered pattern over their former ranges, but the loss of seabeach amaranth from major portions of its former range (such as the stretch of coast from northern North Carolina north through Virginia, Maryland, Delaware, and New Jersey to southern New York) is dramatic and is cause for grave concern over the species' future. The distribution and status of seabeach amaranth in North Carolina shows that the species survives well on beaches with a wide range of recreational uses, including late fall and winter fishing season use of the beach by vehicles. Seabeach amaranth and the majority of recreational users favor the same conditions—wide, sandy beaches. In fact, protection of seabeach amaranth should help assure the maintenance of wide, sandy, recreational beaches. Some of the larger populations of seabeach amaranth are found on beaches with moderate to heavy recreational use, such as Cape Hatteras Point, Wrightsville Beach, Hammocks Beach State Park, Fort Macon State Park, the north end of West Onslow Beach, and the west end of Holden Beach. The proven compatibility of recreational beach use and seabeach amaranth habitat should allay potential concerns among the public over the proposed listing. A number of other Federal- and State-listed endangered or threatened species characteristically use the same habitat as seabeach amaranth—including sea turtles, piping plovers, least terns, and others. Conservation of a healthy, upper beach ecosystem will favor all these species.

A professional ecologist from the State of New York strongly recommended that seabeach amaranth be listed as threatened, stating, "I think it most probable that the species would become extinct if it were not given such protection * * *."

A response from Camp Lejeune Marine Corps Base in North Carolina stated no position on the listing of the plant but reiterated their commitment to "* * * sound natural resource management in concurrence with the execution of requisite military training in the interest of our nation's defense." Camp Lejeune is habitat for several other federally and State-listed species of plants and animals. Their response further stated, "Military training and the conservation of federally listed species have been effectively coordinated in a manner that ensured protection and allowed military training requirements to be adequately performed." They requested that the seabeach amaranth management guidelines not vary substantially from the management guidelines already in place for the sea turtles which nest in the same areas.

Six private individuals opposed the addition of seabeach amaranth to the Federal threatened species list based upon their fears that the beaches in Dare County, North Carolina, would no longer be available for public recreation as a result. One of these respondents commented further that he did not believe sufficient historical data existed to support listing the species, since "biological stocks in North Carolina are in good shape." The Service reiterates its commitment to work with local people to conserve this species and the belief that conservation of the species and public recreation on the beaches are compatible. Regarding the status of North Carolina populations, the Service is required to consider the status of the species rangewide, not just within particular political boundaries. Although there are several large populations remaining in North Carolina, the species is in much worse condition throughout the rest of its range, where it has been completely eliminated from six of the nine States it occupied historically. The criteria for adding species to the Federal list are contained in section 4 of the Act. These criteria, as they relate to the currently known status of seabeach amaranth, are addressed in the "Summary of Factors Affecting the Species" section of this rule.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Amaranthus pumilus* should be classified as threatened. Procedures found at section 4(a)(1) of the Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Amaranthus pumilus* Rafinesque (seabeach amaranth) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Amaranthus pumilus has been and continues to be threatened by destruction or adverse alteration of its habitat. Since the species was discovered, it has been eliminated from approximately two-thirds of its range, primarily as a result of beach stabilization efforts and storm-related erosion. All of the remaining 55 populations are currently threatened by these factors (Bucher and Weakley 1990, Weakley and Bucher 1991, Clemants and Mangels 1990, Mangels 1991).

In September of 1989, Hurricane Hugo struck the Atlantic coast near Charleston, South Carolina, causing extensive flooding and erosion north to Cape Fear, North Carolina, with less severe effects extending northward throughout the range of seabeach amaranth. This was followed by several severe Northeasters in the winter of 1989–1990 and by Hurricane Bertha in the late summer of 1990. These last storms, although not as significant as Hurricane Hugo, caused substantial erosion of many barrier islands in the heart of seabeach amaranth's remaining range. The 1990 surveys revealed that the effects of these climatic events were substantial. Thirteen populations of the species reappeared on Long Island, New York, many in places that had been surveyed repeatedly in the past (Mangels 1991). As stated by Weakley and Bucher (1991):

> It is not known whether these populations represented long-distance dispersal of seeds (perhaps by ocean currents), short-distance dispersal from previously undiscovered populations on Long Island, or the exposure of local seedbanks.

In the Carolinas, populations were severely reduced. In South Carolina, where the effects of Hurricane Hugo and subsequent dune reconstruction were

extensive, amaranth numbers went from 1,800 in 1988 to 188 in 1990, a reduction of 90 percent. Even with the addition of the New York populations, rangewide totals were reduced 76 percent from 1988. Ironically, although storms and related erosion of beaches threaten seabeach amaranth because of its currently restricted range and reduced populations, attempts to stabilize beaches against these natural geophysical processes is often more destructive to the species and to the beaches themselves in the long run. Weakly and Bucher (1991) state:

> Seabeach amaranth never occurs on shorelines where bulkheads, seawalls, or rip rap zones have been constructed. Not only does construction of these structures occur in the primary habitat of seabeach amaranth, but water and wind erosion lower the profile of the beach seaward of the armoring. The upper beach habitat required by seabeach amaranth (above inundation by tidal action) ceases to exist as the beach is steadily eroded. * * * widespread use of seawalls, jetties, and other hard stabilization structures in New Jersey and other northern states is apparently associated with the extirpation of seabeach amaranth in those states. Of all the states in the former range of seabeach amaranth, North Carolina has made the least use of seawalls. The continued presence of seabeach amaranth in North Carolina and in the part of South Carolina's coast lacking seawalls, is probably not accidental or coincidental.

Even nonstructural beach stabilization techniques, such as sand fences and planting of beach-grass, are generally detrimental to seabeach amaranth. Weakley and Bucher (1991) noted that seabeach amaranth only very rarely occurred when sand fences and vegetative stabilization had taken place and, in these situations, was present only as rare scattered individuals.

In some instances beach erosion and lowering of barrier islands has been accelerated by manmade structures built far from the ocean. Damming of large coastal rivers reduces the sediment load carried by the rivers to the coastal environment. Weakley and Bucher (1991) state:

> There is evidence in several cases that this has reduced the coastal sediment budget, leading to increased erosion rates. Construction of the Santee Dam on the Santee River in South Carolina, impounding Lake Marion, has probably caused the increased erosion of islands in the vicinity of the mouth of the Santee * * * all of the islands in the vicinity of the Santee's mouth are currently marginal habitat for seabeach amaranth, and it has been extirpated from a number of islands by the frequency of overwash.

Beach renourishment can have positive impacts on this species. Although more study is needed before the long-term impacts can be accurately assessed, several populations are shown to have established themselves on renourished beaches and have thrived through subsequent applications of dredged material (Weakley an Bucher 1991; W. Adams, U.S. Army Corps of Engineers, personal communication, 1991).

Intensive recreational use of beaches threatens amaranth populations in some instances. Pedestrian traffic, even during the growing season, generally occurs in areas where it has little effect on populations of seabeach amaranth. However, ORV use of the beach during the growing season can have detrimental effects on the species if traffic is not routed around the plants. The fleshy stems of this plant are brittle and easily broken and do not generally survive even a single pass by a truck tire. Therefore, even minor beach traffic over the plants during the growing season is detrimental, causing mortality and reduced seed production (Weakley and Bucher 1991). ORV traffic is allowed at many of the beaches where this species remains, and those sites where vehicles are allowed to run over amaranth plants generally show severe population declines. In contrast, dormant season ORV use has shown little evidence of significant detrimental effects, unless it results in massive physical erosion or degradation of the site. In some cases, winter ORV traffic may actually provide some benefits for the species by setting back succession of perennial grasses and shrubs with which seabeach amaranth cannot compete successfully. Extremely heavy use of an *Amaranthus* site, even in the winter, may have some negative impacts, however, including pulverization of seeds.

Seabeach amaranth appears to be vulnerable to extirpation in two of the three States in which it remains. South Carolina now has only one population with over a hundred plants and a total State census of 188 plants, and New York has only one population with over a hundred plants and a total State census of 357 plants. The many very small populations remaining are highly vulnerable to extirpation from a variety of natural and manmade factors.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Amaranthus pumilus, although it does not have showy flowers and is not currently a component of the commercial trade in native plants, is an attractive and colorful plant, with a prostrate growth habit that could lend itself to planting on beach-front lots. Its effectiveness as a sand binder could make it even more attractive for this purpose. In addition, other amaranths have been cultivated as food crops in North, Central, and South America for nearly 10,000 years and continue to be grown as important crops in temperate and tropical climates throughout the world. "Its importance is magnified by its nutritional value, high in several amino acids often lacking in diets with little meat" (Weakley and Bucher 1991). Currently, seabeach amaranth is being investigated by the U.S. Department of Agriculture and several universities and private institutes for its potential use in crop development and improvement. Its favorable traits of salt tolerance and large seeds could be of commercial value if combined with other desirable crop traits. However, overcollection of seabeach amaranth plants or seeds from wild populations could threaten its continued existence. Because the species is easily recognizable and accessible, it is vulnerable to taking, vandalism, and the incidental trampling by curiosity seekers that could result from increased publicity about the species and the specific areas where it grows.

C. Disease of Predation

No evidence of disease has been seen in seabeach amaranth. However, predation by webworms is a major source of mortality and lowered fecundity. Moderate to severe herbivory by webworms was seen in most populations in both 1987 and 1988, when many populations, particularly the larger ones, were largely defoliated by early fall. Weakley and Bucher (1991) state, "Defoliation at this season appears to result in premature senescence and mortality, reducing seed production (the most basic and critical parameter in the life cycle of an annual species)." Even though the four webworm species so far identified on seabeach amaranth are all native, their use of barrier island habitats has probably been increased by extensive conversion of coastal plain ecosystems to agricultural use and the resulting introduction of weedy plants, which also serve as hosts for the caterpillars. Therefore, the level of predation experienced by seabeach amaranth is probably unnaturally high. Weakley and Bucher (1991) believe that webworm herbivory is a contributing, rather than a leading, factor in the decline of the species. They state, "The combination of extensive habitat alteration and chronic sever herbivory could be a deadly one for seabeach amaranth." On North Carolina's Outer Banks, feral horses graze on seabeach amaranth. The extent and impact of this

herbivory, however, is minor compared to the effects of webworm predation.

D. The Inadequacy of Existing Regulatory Mechanisms

Amaranthus pumilus is afforded legal protection in North Carolina by the General Statutes of North Carolina, §§ 106–202.15, 106–202.19 (N.C. Gen. Stat. section 106 (Supp. 1991)), which provide for protection from intrastate trade (without a permit) and for monitoring and management of State-listed species, and which prohibit taking of plants without written permission of landowners. *Amaranthus pumilus* is listed in North Carolina as threatened. The species is recognized in South Carolina as threatened and of national concern by the South Carolina Advisory Committee on Rare, Threatened, and Endangered Plants in South Carolina; however, this State offers no official protection. In New York the species is not currently listed, since it was only recently rediscovered there. State legislation offers no protection to the habitat of seabeach amaranth in any of the three States where it remains, and habitat loss/modification and predation appear to be the main threats to the continued existence of the species. Federal/State regulation of development in coastal areas under the Coastal Areas Management Act has undoubtedly helped protect the habitat of seabeach amaranth; however, the scope of these regulations is limited and does not preclude all forms of habitat degradation that adversely affect this species. The Endangered Species Act would provide additional protection and encouragement of active management and recovery actions for *Amaranthus pumilus*.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Little is known about the demographics and reproductive requirements of this species in the wild. As a fugitive species dependent on a dynamic landscape and large-scale geophysical processes, seabeach amaranth is extremely vulnerable to habitat fragmentation and isolation of small populations. As stated by Weakley and Bucher (1991):

> In New Jersey and New York, it has been extirpated or severely diminished by the fortification and modification of a portion only of the coastline. Rendering 50 percent or 75 percent of a coastline "permanently" unsuitable may doom seabeach amaranth, because any given area will become unsuitable at some time because of natural forces. If a seed source is no longer available in the vicinity, amaranth will be unable to reestablish itself when the area is once again suitable. In this way, it can be progressively eliminated even from generally favorable stretches of habitat surrounded by "permanently" unfavorable areas * * * fragmentation of habitat in the north has apparently led to regional extirpation, resulting from the separation of suitable habitat areas from one another by too great a distance to allow recolonization following natural catastrophes. Though apparently suitable habitat is present in a number of northern states formerly part of seabeach amaranth's range, it is no longer found there * * * seabeach amaranth grows above the high tide line, and is intolerant of even occasional flooding during its growing season. It does not, however, grow more than a meter or so above the beach elevation on the foredune or anywhere behind the foredune (except very rarely and extraordinarily). It is, therefore, dependent on a terrestrial, upper beach habitat, unflooded during the growing season from May into the fall. This zone is absent on barrier islands that are experiencing significant rates of beach erosion. If data and hypotheses suggesting future increases in sea level are correct, beach erosion will accelerate and put further pressure on seabeach amaranth.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Amaranthus pumilus* as threatened. With the species already having been extirpated from two-thirds of its historic range, and based upon the threats to most of the remaining populations, it warrants protection under the Act. Threatened status seems appropriate since there are 55 remaining populations, including some large ones in areas protected from development and beach stabilization.

Critical habitat is not being designated for the reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary propose critical habitat at the time the species is proposed to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Amaranthus pumilus* at this time. As discussed in Factor B in the "Summary of Factors Affecting the Species," *Amaranthus pumilus* is vulnerable to taking, and taking prohibitions are difficult to enforce. Take is regulated by the Act with respect to threatened plants only in cases of removal and reduction to possession from lands under Federal jurisdiction. Most populations of *Amaranthus pumilus* are located on private lands. Although North Carolina general statutes prohibit collection of *Amaranthus pumilus* without permission from the landowner, unlawful taking is difficult to enforce, and publication of critical habitat descriptions would make it more vulnerable to taking and vandalism, increasing enforcement problems for the State of North Carolina. In addition, while listing under the Act increases public awareness of the species' plight, it can also increase the desirability of a species to collectors. As stated previously, *Amaranthus pumilus* is an attractive plant, whose populations are easily accessible. It also could be adversely affected by increased visits to and associated trampling of occupied sites by curiosity seekers as a result of critical habitat designation and accompanying increases in specific publicity.

For the foregoing reasons, it would not be prudent to determine critical habitat for *Amaranthus pumilus*. The Federal and State agencies and landowners involved in protecting and managing the habitat of this species have been informed of the plant's locations and the importance of its protection. Protection of this species' habitat will be addressed through the recovery process and through the section 7 consultation process.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued

existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal activities that could impact *Amaranthus pumilus* and its habitat in the future include, but are not limited to, the following: Construction of beach stabilization structures, such as jetties, groins, bulkheads, and sand fences; beach renourishment and deposition of dredged spoil; and regulation of recreational beach use on Federal lands. The Service will work with the involved agencies to secure protection and proper management of *Amaranthus pumilus* while accommodating agency activities to the extent possible.

The Act and its implementing regulations found at 50 CFR 17.71 and 17.72 set forth a series of general prohibitions and exceptions that apply to all threatened plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers.

In addition, for endangered plants, the 1988 amendments (Pub. L. 100–478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Section 4(d) of the Act allows for the provision of such protection to threatened species through regulations. This protection may apply to threatened plants once revised regulations are promulgated. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulations on listed plants and inquiries regarding prohibitions and permits may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room 432, Arlington, Virginia 22203 (703/358–2104).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Bucher, M., and A. Weakley. 1990. Status survey of seabeach amaranth (*Amaranthus pumilus* Rafinesque) in North and South Carolina. Report to North Carolina Plant Conservation Program, North Carolina Department of Agriculture, Raleigh, NC, and Endangered Species Field Office, U.S. Fish and Wildlife Service, Asheville, NC. 149 pp.

Clemants, S. and C. Mangels. 1990. *Amaranthus pumilus*—1990 New York State status survey. Report to U.S. Fish and Wildlife Service, Newton Corner, MA. 11 pp.

Mangels, C. 1991. Seabeach amaranth in New York State. New York Flora Association Newsletter 2(2):7–8.

Radford, A., H. Ahles, and C. Bell. 1968. Manual of the vascular flora of the Carolinas. University of North Carolina Press, Chapel Hill, NC.

Rafinesque schmaltz, C.S. 1808. Essential generic and specific characters of some new genusses (sic) and species of plants observed in the United States of America, in 1803 and 1804. The Medical Repository II(5)355–363.

Weakley, A., and M. Bucher. 1991. Status survey of seabeach amaranth (*Amaranthus pumilus* Rafinesque) in North and South Carolina, second edition (after Hurricane Hugo). Report to North Carolina Plant Conservation Program, North Carolina Department of Agriculture, Raleigh, NC, and Endangered Species Field Office, U.S. Fish and Wildlife Service, Asheville, NC. 149 pp.

Author

The primary author of this final rule is Ms. Nora Murdock (see "ADDRESSES" section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50, of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

(1) The authority citation for 50 CFR part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Public Law 99–625, 100 Stat. 3500; unless otherwise noted.

(2) Amend § 17.12(h) by adding the following, in alphabetical order under Amaranthaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
*	*	*	*	*	*	*
Amaranthaceae—Amaranth family:						
*	*	*	*	*	*	*
Amaranthus pumilus ...	Seabeach amaranth	U.S.A. (DE, MA, MD, NC, NJ, NY, RI, SC, and VA).	T	498	NA	NA
*	*	*	*	*	*	*

Dated: March 11, 1993.

Richard N. Smith,

Acting Director, Fish and Wildlife Service.

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